

Region 1 FY 2015 Invasive Species Control Program Proposal

Refuge/complex name: Malheur National Wildlife Refuge

Project title: Telemetry Targeted Carp Movement and Removal

Total amount requested: \$30,000

Project description:

Invasive common carp *Cyprinus carpio* were introduced into the Harney Basin in the 1920's and were recognized as a problem in Malheur Lake in 1952. The common carp have degraded the wildlife value of the Refuge by competing for the same food base as many resident and migrating species and immensely decreasing water quality. Rotenone, a non-species specific piscicide, has been the primary treatment to control the carp population, but has only been an effective short term tool. Wildlife benefits are observed for 3 to 5 years after rotenone treatment until the carp population rebounds causing increased water turbidity and decrease of wildlife food availability.

Reduction of common carp abundance and biomass in Malheur Lake and adjacent waters will require population control efforts targeting more than one life stage. Currently, the Refuge is working with Abernathy Fish Technology Center on a way to control eggs and embryos through invasive species control program funds. This proposal will aid in addressing the adult life stage of common carp. Seasonal movement of carp in Malheur Lake has not been documented successfully. The telemetry study will document movement of 100 adult carp for 24 months using aircraft for detection. Common carp have specific habitat requirements for spawning, and seasonally depending on water level. By determining location and habitat use of carp, removal efforts can be made more efficiently.

Distinct project with well-defined objectives (10 points):

This project directly addresses the Malheur NWR CCP Goal 1. Objective 1., by aiding in understanding and controlling carp populations in Malheur Lake. This project is listed as one of five priority studies by the Malheur Lake Workgroup and is a key part of the Harney Basin Wetland Initiative. This proposal will meet the following objectives:

1. Surgically implant 100 low frequency radio tags into adult common carp to track movement and pinpoint locations for optimal removal over a 24 month period.
2. Collaborate with a commercial fisherman to remove carp from tracked locations.

Potential for maximum control/Likelihood of success (10 points):

The likelihood of success is very high having funding secured for a Master level graduate student to conduct this project under the guidance of Dr. Jason Dunham, a scientist from USGS and affiliated with OSU. Furthermore, Oregon Wildlife is close to finalizing an agreement with a commercial fisherman to fish Malheur Lake.

In 2010-2011 a pilot telemetry study was conducted on tracking 35 fish in Malheur Lake. Low frequency tags were determined as the best radio tag to use, 5 fish were found to in a winter aggregate and the man power needed to fully conduct this project was highly underestimated. For success, a fulltime person needs to focus and conduct a study for optimal results and an airplane needs to be used for tracking the fish not an airboat. All the elements are in place for success except funding for the telemetry tags.

Comment [BF1]: I like that a pilot was completed and the lessons learned were taken and used to design this larger project. It is still unclear to me as to whether the ultimate goal, fishing out major aggregations of carp, will have an impact.

Biological benefit to priority species or BIDEH (10 points):

Common carp have been a serious threat to the biological integrity of the Refuge since the 1950's. They have been responsible for a >75% decrease in duck production on Malheur Lake, which indicates we are not fulfilling our Congressional mandate of "providing a breeding and nesting ground for migratory water birds." Furthermore, the annual narratives pre-carp described in detail 9 species of submerged aquatic vegetation. In 2013, 50 randomized vegetation samples were taken and no species of vegetation was present in Malheur Lake. Telemetry and removal have proven to be viable control options in other places around the world. Therefore, project success would lead to bird species, native fish species (including the Oregon Sensitive Species redband trout), plants and macro/micro-organisms flourishing creating a better habitat for all species.

Comment [BF2]: This helps with my question above (somewhat). I would love specifics, though.

Sustainability (10 points): Eradication of common carp from Malheur NWR may not be an option.

However, many collaborators are working towards control and this study would fund the next data gap that needs to be filled. By tracking carp for the next two years, seasonal movement will be documented and used for targeted carp control by commercial fisherman. Commercial fish harvest will be used as a control tool to decrease the population of carp to below 100 lbs/acre.

Comment [BF3]: What's the potential for the carp aggregates to be consistent across years? Will telemetry be necessary every year to target control efforts? Just curious...

Monitoring to document and evaluate project success (10 points): Success of this project will be the implanting and tracking of 100 adult common carp for 24 months. During this time, the data collected will be used to direct commercial fisherman to optimal spots on Malheur Lake to fish for carp. Each year, water quality, submerged aquatic vegetation, macroinvertebrates, bird usage and fish populations are monitored in Malheur Lake. Any decrease in carp and increase in the other variables will be noted as a success.

Budget:

Partner	Contribution	Need
Malheur NWR	\$215,000 – graduate student funding, staff support, equipment, monitoring	\$30,000 – 100 telemetry tags at \$300/tag
Oregon State University	\$15,000 – study development, graduate student advisement	
Oregon Wildlife	\$120,000-contract of commercial fisherman	
Light Hawk	\$40,000-donated flights for tracking carp	
TOTALS	\$390,000	\$30,000